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CALFED Water Transfer Element

DRAFT Discussion Paper No. 7 - Groundwater Transfers

Issue/Question

What should be CALFED policy regarding transfers of groundwater and surface water transfers with groundwater replacement? What policy, rules or criteria are needed to protect local groundwater resources from impairment due to these kinds of transfers?

Summary

Some stakeholders believe that ground water transfers or surface water transfers based on groundwater substitution, unless properly regulated, will result in adverse impacts to groundwater resources, with significant adverse environmental and economic effects, in the source water area. Such impacts might include land subsidence, lower groundwater levels and higher pumping costs, degradation of groundwater quality, impacts to vegetation dependant on groundwater, or in extreme cases, losses of existing wells.

Several Sacramento Valley counties have passed ordinances restricting or limiting the export of groundwater. Similar ordinances have been considered by some San Joaquin Valley counties.

Currently, there is no mechanism in state law for watershed based management of groundwater resources. This may lead to inconsistent or conflicting approaches to groundwater management by local agencies, with adverse effects on the development of a statewide water transfer market.

The potential for adverse impacts to groundwater resources makes transfers politically sensitive in source water areas, such as the Sacramento Valley. The absence of any mechanism for watershed based groundwater management makes it more difficult to develop conjunctive use programs and other tools for more effectively managing groundwater and surface water.

Discussion

There are two related sets of issues. First, when and subject to what conditions can groundwater be directly transferred and exported out of the basin? (A corollary question is whether the rules are or should be different for in-basin groundwater transfers?) What impacts should be considered - water quality, pumping levels, short term overdraft, long term overdraft, impact on surface flows, others? Can transferred groundwater be replaced with surface water which becomes available later in the year?

Second, when can transferred surface water be replaced with groundwater? Can replacement be done concurrently with the period of the transfer or can it be done later in the year?

There is little statutory authority on direct groundwater transfers. Generally, groundwater cannot be exported from the legal Delta (Water Code section 1220.) It is not clear whether groundwater can be purchased for instream or outflow purposes from within the legal Delta.

In other geographical areas, the limits on groundwater transfers are the case law rules on appropriation of groundwater for use beyond the overlying lands. Generally, this means that only groundwater which is surplus to the needs of the overlying owners can be appropriated and exported for use on non-overlying lands. (But does this refer to "surplus" in real time, say the immediate water year, or it does mean "surplus" over some longer period of time, allowing for periods of groundwater recharge?) In some counties, particularly in the Sacramento Valley, county ordinances impose additional restrictions on the export of groundwater.

Regarding groundwater substitution transfers, Water Code Section 1745.10 says "replacement pumping" is not permitted unless it is consistent with a groundwater management plan for that area or the water supplier determines there will no be long term overdraft impact. (This article of the Water Code applies only to transfers of a water from a "water supplier", as defined, or an individual water user who receives water from a "water supplier", so it may not cover all groundwater substitution transfers.)

A provision of the CVPIA requires that a determination be made that transfers of CVP water will have no long term adverse impact on groundwater conditions in the transferor's service area.

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Any long term transfer would also require CEQA documentation which would include analysis of impacts on groundwater.

With respect to impacts on CVP and SWP, one significant issue is whether a transfer of groundwater or a "groundwater substitution" transfer adversely affects stream flow by inducing a depletion from the stream at a time when the Delta is in balanced conditions, thereby compelling the CVP or SWP to increase reservoir releases to maintain outflow or salinity requirements in the Delta.

Both the CVP and SWP have also expressed concern in the past about the water quality problems associated with using project facilities to convey groundwater. In some cases, groundwater is of significantly lesser quality than the project's surface water supplies and introduction of groundwater into the system may create drinking water treatment problems.

A major set of issues related to groundwater transfers (and surface water transfers with groundwater substitution) is the impact on other groundwater users in the source water area. These "third party impacts" of groundwater transfers may result in lower groundwater levels, or reduced water quality of the remaining groundwater. (See Issue Paper No. 9 on Third Party Impacts.)

Options to resolve these issues

Additional data is needed regarding the Sacramento Valley groundwater basin. A better understanding of the relationships between surface water and groundwater and of the recharge capacity of the aquifer (or aquifers) would enhance the development of policy and regulations regarding the management of Sacramento Valley groundwater resources.

One possibility would be the formation of a regional entity, perhaps a joint powers agency of Sacramento Valley counties, to study the groundwater resources of the area and to provide technical review and advice to local agencies regarding transfers involving groundwater. CALFED could consider the governance and funding mechanism for such an entity.

Tools to respond to the third party impacts of groundwater based transfers will be discussed in Issue Paper No. 9.

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